

What is claimed is:

1. An apparatus for dispensing a fluid for forming a bond between plies of a vehicle interior panel comprising:

a fluid reservoir containing a quantity of fluid; and

5 a spray mechanism adapted to dispense an amount of the quantity of fluid;

wherein the reservoir is positioned above the spray mechanism such that a dispensing pressure of the fluid is controlled by the height of the fluid within the reservoir.

10 2. The apparatus defined in Claim 1 further comprising:

a controller, wherein the controller is adapted to measure the quantity of fluid dispensed.

3. The apparatus defined in Claim 2 wherein the amount of fluid dispensed  
15 is determined by obtaining a first fluid height within the reservoir and a second fluid height within the reservoir, and multiplying the difference between the first and second heights by the cross sectional area of the reservoir.

4. The apparatus defined in Claim 3 wherein the controller is adapted to  
20 operate a valve attached to a feed line such that the valve is opened to refill the reservoir.

5. The apparatus defined in Claim 4 wherein the reservoir is refilled to at  
least one of a same, higher and lower height than an initial fluid height based on the  
25 determined amount of fluid dispensed.

6. The apparatus defined in Claim 4 wherein the fluid feed line is connected to a source of fluid.

7. The apparatus defined in Claim 3 further comprising a pressure detecting device positioned at substantially the same elevation as the spray mechanism.

8. The apparatus defined in Claim 7 wherein the fluid height is determined by the controller based on a combination of the pressure detected at the spray mechanism, a density of the fluid, and a gravitational force constant.

9. The apparatus defined in Claim 8 wherein the pressure detecting device is one of a pressure transducer and a pressure gauge.

10. The apparatus defined in Claim 1 wherein the reservoir is a generally vertical tube.

11. The apparatus defined in Claim 1 wherein the reservoir is a tank.

12. The apparatus defined in Claim 1 wherein the vehicle interior panel is a headliner.

13. A method for dispensing fluid for forming a bond between plies of a vehicle interior panel comprising:

providing a reservoir containing an amount of fluid;

providing a spray mechanism for dispensing the fluid from the reservoir;

positioning the fluid source at an initial height above the spray mechanism;

operating a controller to determine the initial height of the fluid;

operating the spray mechanism to dispense an amount of the fluid;

operating the controller to determine a second height of the fluid; and

calculating the amount of fluid used during the dispensing operation.

14. The method defined in Claim 13 further comprising a valve operatively connected to the controller wherein the valve is positioned between the reservoir and a source of the fluid; and

the valve is operated by the controller to refill the reservoir.

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15. The method defined in Claim 14 wherein the valve is operated by the controller to one of:

refill the reservoir to an amount greater than the initial height of fluid when the amount of fluid dispensed is less than a pre-set amount;

10        refill the reservoir to an amount less than the initial height of the fluid when the amount of fluid dispensed is greater than the pre-set amount; and

refill the reservoir to the same amount as the initial height of the fluid when the amount of fluid dispensed is equal to the pre-set amount.

15        16. The method defined in Claim 13 wherein the initial height of the fluid is checked prior to each dispensing cycle.

17. The method defined in Claim 13 wherein the controller determines the fluid height based on a density of the fluid, a fluid pressure at the spray mechanism,  
20 and a gravitational force constant.

18. The method defined in Claim 13 wherein the vehicle interior panel is a first vehicle headliner ply having a polyurethane adhesive applied thereto; and  
the fluid is a catalyst that interacts with the adhesive to form a bond with a  
25 second headliner ply.